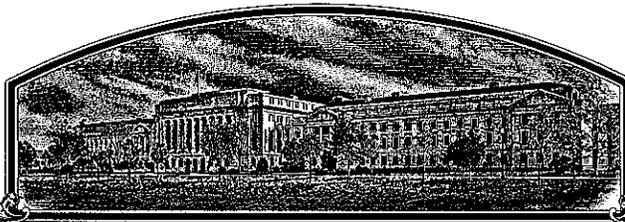


No.

9100025



THE UNITED STATES OF AMERICA

TO ALL TO WHOM THESE PRESENTS SHALL COME:

Minnesota Agricultural Experiment Station

Whereas, THERE HAS BEEN PRESENTED TO THE

Secretary of Agriculture

AN APPLICATION REQUESTING A CERTIFICATE OF PROTECTION FOR AN ALLEGED NOVEL VARIETY OF SEXUALLY REPRODUCED PLANT, THE NAME AND DESCRIPTION OF WHICH ARE CONTAINED IN THE APPLICATION AND EXHIBITS, A COPY OF WHICH IS HEREUNTO ANNEXED AND MADE A PART HEREOF, AND THE VARIOUS REQUIREMENTS OF LAW IN SUCH CASES MADE AND PROVIDED HAVE BEEN COMPLIED WITH, AND THE TITLE THERETO IS, FROM THE RECORDS OF THE PLANT VARIETY PROTECTION OFFICE, IN THE APPLICANT(S) INDICATED IN THE SAID COPY, AND WHEREAS, UPON DUE EXAMINATION MADE, THE SAID APPLICANT(S) IS (ARE) ADJUDGED TO BE ENTITLED TO A CERTIFICATE OF PLANT VARIETY PROTECTION UNDER THE LAW.

NOW, THEREFORE, THIS CERTIFICATE OF PLANT VARIETY PROTECTION IS TO GRANT UNTO THE SAID APPLICANT(S) AND THE SUCCESSORS, HEIRS OR ASSIGNS OF THE SAID APPLICANT(S) FOR THE TERM OF *eighteen* YEARS FROM THE DATE OF THIS GRANT, SUBJECT TO THE PAYMENT OF THE REQUIRED FEES AND PERIODIC REPLENISHMENT OF VIABLE BASIC SEED OF THE VARIETY IN A PUBLIC REPOSITORY AS PROVIDED BY LAW, THE RIGHT TO EXCLUDE OTHERS FROM SELLING THE VARIETY, OR OFFERING IT FOR SALE, OR REPRODUCING IT, OR IMPORTING IT, OR EXPORTING IT, OR USING IT IN PRODUCING A HYBRID OR DIFFERENT VARIETY THEREFROM, TO THE EXTENT PROVIDED BY THE PLANT VARIETY PROTECTION ACT. THE UNITED STATES SEED OF THIS VARIETY (1) SHALL BE SOLD BY VARIETY NAME ONLY AS SEEDS OF CERTIFIED SEED AND (2) SHALL CONFORM TO THE NUMBER OF GENERATIONS BY THE OWNER OF THE RIGHTS. (84 STAT. 1542, AS AMENDED, 7 U.S.C. 2321 ET SEQ.)

SOYBEAN

'Kasota'

In Testimony Whereof, I have hereunto set my hand and caused the seal of the Plant Variety Protection Office to be affixed at the City of Washington, D.C. this 30th day of September in the year of our Lord one thousand nine hundred and ninety-two.

Attest:

Kenneth A. Howard
Commissioner
Plant Variety Protection Office
Agricultural Marketing Service

Edward Madison
Secretary of Agriculture



U.S. DEPARTMENT OF AGRICULTURE
AGRICULTURAL MARKETING SERVICE

APPLICATION FOR PLANT VARIETY PROTECTION CERTIFICATE

(Instructions on reverse)

Application is required in order to determine if a plant variety protection certificate is to be issued (7 U.S.C. 2421). Information is held confidential until certificate is issued (7 U.S.C. 2426).

| | | | |
|---|---|---|--|
| 1. NAME OF APPLICANT(S) (as it is to appear on the Certificate) Minnesota Agricultural Experiment Station | | 2. TEMPORARY DESIGNATION OR EXPERIMENTAL NO. M82-106 | 3. VARIETY NAME Kasota |
| 4. ADDRESS (street and no. or R.F.D. no., city, state, and ZIP) University of Minnesota 220 Coffey Hall 1420 Eckles Avenue St. Paul, MN 55108 | | 5. PHONE (include area code) (612) 625-4211 | FOR OFFICIAL USE ONLY PVPO NUMBER 9100025 <hr/> F I L I N G Date Nov. 1, 1990 Time <input type="checkbox"/> A.M. <input type="checkbox"/> P.M. <hr/> F E E S Filing and Examination Fee: \$ 2150. ⁰⁰ Date Nov. 1, 1990 <hr/> R E C E I V E D Certificate Fee: \$ 250. ⁰⁰ Date August 21, 1992 |
| 6. GENUS AND SPECIES NAME Glycine max | 7. FAMILY NAME (Botanical) Leguminosae | | |
| 8. CROP KIND NAME (Common Name) Soybean | 9. DATE OF DETERMINATION November 15, 1989 | | |
| 10. IF THE APPLICANT NAMED IS NOT A "PERSON," GIVE FORM OF ORGANIZATION (Corporation, partnership, association, etc.) State Experiment Station | | 12. DATE OF INCORPORATION | |
| 11. IF INCORPORATED, GIVE STATE OF INCORPORATION | | | |

13. NAME AND ADDRESS OF APPLICANT REPRESENTATIVE(S), IF ANY, TO SERVE IN THIS APPLICATION AND RECEIVE ALL PAPERS
 J.H. Orf, Department of Agronomy and Plant Genetics
 University of Minnesota, 1991 Buford Circle
 411 Borlaug Hall
 St. Paul, MN 55108

PHONE (include area code):

14. CHECK APPROPRIATE BOX FOR EACH ATTACHMENT SUBMITTED (Follow INSTRUCTIONS on reverse)

- a. Exhibit A, Origin and Breeding History of the Variety.
- b. Exhibit B, Novelty Statement.
- c. Exhibit C, Objective Description of Variety.
- d. Exhibit D, Additional Description of Variety.
- e. Exhibit E, Statement of the Basis of Applicant's Ownership.
- f. Seed Sample (2,500 viable untreated seeds). Date Seed Sample mailed to Plant Variety Protection Office _____
- g. Filing and Examination Fee (\$2,150) made payable to "Treasurer of the United States."

15. DOES THE APPLICANT(S) SPECIFY THAT SEED OF THIS VARIETY BE SOLD BY VARIETY NAME ONLY AS A CLASS OF CERTIFIED SEED? (See section 83(a) of the Plant Variety Protection Act.)
 YES (if "YES," answer items 16 and 17 below) NO (if "NO," skip to item 18 below)

16. DOES THE APPLICANT(S) SPECIFY THAT THIS VARIETY BE LIMITED AS TO NUMBER OF GENERATIONS?
 YES NO

17. IF "YES" TO ITEM 16, WHICH CLASSES OF PRODUCTION BEYOND BREEDER SEED?
 FOUNDATION REGISTERED CERTIFIED

18. DID THE APPLICANT(S) PREVIOUSLY FILE FOR PROTECTION OF THE VARIETY IN THE U.S.?
 YES (if "YES," through Plant Variety Protection Act Patent Act. Give date: _____)
 NO

19. HAS THE VARIETY BEEN RELEASED, USED, OFFERED FOR SALE, OR MARKETED IN THE U.S. OR OTHER COUNTRIES?
 YES (if "YES," give names of countries and dates) February 15, 1990 JH
 NO 23 July 1992

20. The applicant(s) declare(s) that a viable sample of basic seeds of this variety will be furnished with the application and will be replenished upon request in accordance with such regulations as may be applicable.

The undersigned applicant(s) is (are) the owner(s) of this sexually reproduced novel plant variety, and believe(s) that the variety is distinct, uniform, and stable as required in section 41, and is entitled to protection under the provisions of section 42 of the Plant Variety Protection Act.

Applicant(s) is (are) informed that false representation herein can jeopardize protection and result in penalties.

| | | |
|---|-------------------------------|--------------------------|
| SIGNATURE OF APPLICANT (Owner(s)) <i>C. Eugene Allen</i> | CAPACITY OR TITLE Director | DATE October 19, 1990 |
| SIGNATURE OF APPLICANT (Owner(s)) | CAPACITY OR TITLE | DATE |

Origin and Breeding History of Kasota Soybean

'Kasota' traces to the F_4 progeny of an F_3 plant that was from an F_3 progeny row that traces to an F_2 plant from the cross M73-105 x Vickery. The pedigree breeding procedure was used. M73-105 is a line derived from the cross M68-49 x Clay. M68-49 is a line derived from the cross Evans x M59-120. M59-120 is a line derived from the cross M54-240 x M54-139. M54-240 is a line derived from the cross (Lincoln² x Richland) x Korean. M54-139 is a line derived from the cross Renville x Capital. Bulk seed of the F_4 row was designated M82-106 and was used for yield testing in the F_5 (1983). Subsequent yield and agronomic evaluations of strain M82-106 were conducted in the F_6 (1984) and F_7 (1985). In the F_7 generation, 50 typical plants were selected to initiate purification for observable traits including reaction to race 3 of Phytophthora root rot. In the F_8 (1986), M81-106 was entered in the Maturity Group I Preliminary Regional Soybean Test. In 1986, twenty-nine rows were grown for purification purposes. Twenty-two rows appeared uniform for plant and seed characteristics including resistance to race 3 of Phytophthora root rot, therefore, seed of these rows was bulked to provide the breeder's seed. In the F_9 (1987), F_{10} (1988) and F_{11} (1989), M82-106 was tested in the Uniform Regional Soybean Test Maturity Group I. In the F_9 (1987), a small increase of breeder's seed was made. In the F_{10} (1988), foundation seed was produced by the Minnesota Foundation Seeds Organization. The foundation seed produced was shared with other states for increase. In the F_{11} (1989), seed was increased and M82-106 was approved for release as Kasota. On February 15, 1990, seed of Kasota was released to registered and/or certified growers in Minnesota and South Dakota. No off type variants were noted in the seed multiplication process of Kasota over three generations, thus the variety breeds true and meets certification standards.

Exhibit B

Novelty Statement

^{most} ^{JCS} ^{23 July 1992}
 'Kasota' is similar to 'Sibley'. Kasota matures approximately one day later than Sibley, has about three percent higher yield potential and is about two inches shorter. Kasota has smaller seeds than Sibley. Kasota has a better lodging score but a slightly poorer seed quality score than Sibley. The protein content of Kasota is considerably higher than Sibley while the oil content of Kasota is only slightly lower than Sibley. Kasota carries the Rps1c gene for resistance to Phytophthora root rot making it resistant to races 1, 2, 3, 6, 7, 8, 9, 10, 11, 13, 15, 17, 21, 23, 24, and 26 while Sibley has the Rps1 gene for phytophthora root rot resistance making it resistant to races 1, 2, 10, 11, 13, 15, 16, 17, 18, 24 and 27.

Data comparing Kasota and Sibley is taken from Uniform Test I, Northern States 1987-89 (a total of 46 tests for most traits).

| Variety | Date mature | Yield bu/ac | Height inches | Lodging score | Seed quality score | Seed size g/100 | Oil % | Protein % |
|---------|-------------|-------------|---------------|---------------|--------------------|-----------------|-------|-----------|
| Kasota | 9/14 | 42.1 | 32 | 1.3 | 2.1 | 15.5 | 21.3 | 41.1 |
| Sibley | 9/13 | 40.9 | 34 | 2.0 | 1.9 | 17.1 | 21.6 | 39.4 |

U.S. DEPARTMENT OF AGRICULTURE
 AGRICULTURAL MARKETING SERVICE
 LIVESTOCK, MEAT, GRAIN & SEED DIVISION
 PLANT VARIETY PROTECTION OFFICE
 BELTSVILLE, MARYLAND 20705

EXHIBIT C
 (Soybean)

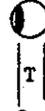
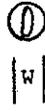
OBJECTIVE DESCRIPTION OF VARIETY
SOYBEAN (*Glycine max* L.)

| | | |
|--|----------------------------------|------------------------------|
| NAME OF APPLICANT(S) Minnesota Agricultural Experiment Station | TEMPORARY DESIGNATION M82-106 | VARIETY NAME Kasota |
| ADDRESS (Street and No., or R.F.D. No., City, State, and Zip Code) University of Minnesota 220 Coffey Hall, 1420 Eckles Avenue St. Paul, MN 55108 | | FOR OFFICIAL USE ONLY |
| | | PVPO NUMBER 9100025 |

Choose the appropriate response which characterizes the variety in the features described below. When the number of significant digits in your answer is fewer than the number of boxes provided, place a zero in the first box when number is 9 or less (e.g., 0 9).

1. SEED SHAPE:

2



1 = Spherical (L/W, L/T, and T/W ratios = < 1.2)
 3 = Elongate (L/T ratio > 1.2; T/W = < 1.2)

2 = Spherical Flattened (L/W ratio > 1.2; L/T ratio = < 1.2)
 4 = Elongate Flattened (L/T ratio > 1.2; T/W > 1.2)

2. SEED COAT COLOR: (Mature Seed)

1

1 = Yellow 2 = Green 3 = Brown 4 = Black 5 = Other (Specify) _____

3. SEED COAT LUSTER: (Mature Hand Shelled Seed)

1

1 = Dull ('Corsoy 79'; 'Braxton') 2 = Shiny ('Nebsoy'; 'Gasoy 17')

4. SEED SIZE: (Mature Seed)

1 5

Grams per 100 seeds

5. HILUM COLOR: (Mature Seed)

1

1 = Buff 2 = Yellow 3 = Brown 4 = Gray 5 = Imperfect Black 6 = Black 7 = Other (Specify) _____

6. COTYLEDON COLOR: (Mature Seed)

1

1 = Yellow 2 = Green

7. SEED PROTEIN PEROXIDASE ACTIVITY:

1

1 = Low 2 = High

8. SEED PROTEIN ELECTROPHORETIC BAND:

2

1 = Type A (SP1^a) 2 = Type B (SP1^b)

9. HYPOCOTYL COLOR:

1

1 = Green only ('Evans'; 'Davis') 2 = Green with bronze band below cotyledons ('Woodworth'; 'Tracy')
 3 = Light Purple below cotyledons ('Beeson'; 'Pickett 71')
 4 = Dark Purple extending to unifoliate leaves ('Hodgson'; 'Coker Hampton 266A')

10. LEAFLET SHAPE:

3

1 = Lanceolate 2 = Oval 3 = Ovate 4 = Other (Specify) _____

4

11. LEAFLET SIZE:

- 2 = 1 = Small ('Amsoy 71'; 'A5312') 2 = Medium ('Corsoy 79'; 'Gasoy 17')
 3 = Large ('Crawford'; 'Tracy')

12. LEAF COLOR:

- 2 = 1 = Light Green ('Weber'; 'York') 2 = Medium Green ('Corsoy 79'; 'Braxton')
 3 = Dark Green ('Gnome'; 'Tracy')

13. FLOWER COLOR:

- 1 = 1 = White 2 = Purple 3 = White with purple throat

14. POD COLOR:

- 2 = 1 = Tan 2 = Brown 3 = Black

15. PLANT PUBESCENCE COLOR:

- 1 = 1 = Gray 2 = Brown (Tawny)

16. PLANT TYPES:

- 2 = 1 = Slender ('Essex'; 'Amsoy 71') 2 = Intermediate ('Amcor'; 'Braxton')
 3 = Bushy ('Gnome'; 'Govan')

17. PLANT HABIT:

- 3 = 1 = Determinate ('Gnome'; 'Braxton') 2 = Semi-Determinate ('Will')
 3 = Indeterminate ('Nebsoy'; 'Improved Pelican')

18. MATURITY GROUP:

- 0 4 = 1 = 000 2 = 00 3 = 0 4 = I 5 = II 6 = III 7 = IV 8 = V
 9 = VI 10 = VII 11 = VIII 12 = IX 13 = X

19. DISEASE REACTION: (Enter 0 = Not Tested; 1 = Susceptible; 2 = Resistant)

BACTERIAL DISEASES:

- 0 Bacterial Pustule (*Xanthomonas phaseoli* var. *sojensis*)
 0 Bacterial Blight (*Pseudomonas glycinea*)
 0 Wildfire (*Pseudomonas tabaci*)

FUNGAL DISEASES:

- 0 Brown Spot (*Septoria glycines*)
 Frog-eye Leaf Spot (*Cercospora sojina*)
 0 Race 1 Race 2 Race 3 Race 4 Race 5 Other (Specify)
 0 Target Spot (*Corynespora cassicola*)
 0 Downy Mildew (*Peronospora trifoliorum* var. *manshurica*)
 0 Powdery Mildew (*Microsphaera diffusa*)
 1 Brown Stem Rot (*Cephalosporium gregatum*)
 0 Stem Canker (*Diaporthe phaseolorum* var. *caulivora*)

19. DISEASE REACTION: (Enter 0 = Not Tested; 1 = Susceptible; 2 = Resistant) (Continued)

FUNGAL DISEASES: (Continued)

0 Pod and Stem Blight (*Diaporthe phaseolorum* var; *sojae*)

0 Purple Seed Stain (*Cercospora kikuchii*)

0 Rhizoctonia Root Rot (*Rhizoctonia solani*)

Phytophthora Rot (*Phytophthora megasperma* var. *sojae*)

2 Race 1 2 Race 2 2 Race 3 1 Race 4 0 Race 5 2 Race 6 2 Race 7

2 Race 8 2 Race 9 Other (Specify) _____

VIRAL DISEASES:

0 Bud Blight (Tobacco Ringspot Virus)

0 Yellow Mosaic (Bean Yellow Mosaic Virus)

0 Cowpea Mosaic (Cowpea Chlorotic Virus)

0 Pod Mottle (Bean Pod Mottle Virus)

0 Seed Mottle (Soybean Mosaic Virus)

NEMATODE DISEASES:

Soybean Cyst Nematode (*Heterodera glycines*)

1 Race 1 0 Race 2 1 Race 3 0 Race 4 Other (Specify) _____

0 Lance Nematode (*Hoplolaimus Colombus*)

0 Southern Root Knot Nematode (*Meloidogyne incognita*)

0 Northern Root Knot Nematode (*Meloidogyne Hapla*)

0 Peanut Root Knot Nematode (*Meloidogyne arenaria*)

0 Reniform Nematode (*Rotylenchulus reniformis*)

OTHER DISEASE NOT ON FORM (Specify): _____

20. PHYSIOLOGICAL RESPONSES: (Enter 0 = Not Tested; 1 = Susceptible; 2 = Resistant)

2 Iron Chlorosis on Calcareous Soil

Other (Specify) _____

21. INSECT REACTION: (Enter 0 = Not Tested; 1 = Susceptible; 2 = Resistant)

0 Mexican Bean Beetle (*Epilachna varivestis*)

0 Potato Leaf Hopper (*Empoasca fabae*)

0 Other (Specify) _____

22. INDICATE WHICH VARIETY MOST CLOSELY RESEMBLES THAT SUBMITTED.

| CHARACTER | NAME OF VARIETY | CHARACTER | NAME OF VARIETY |
|-------------|-----------------|-----------------------|-----------------|
| Plant Shape | Vickery | Seed Coat Luster | Sibley |
| Leaf Shape | Vickery | Seed Size | Vickery |
| Leaf Color | Vickery | Seed Shape | Sibley |
| Leaf Size | Vickery | Seedling Pigmentation | Sibley |

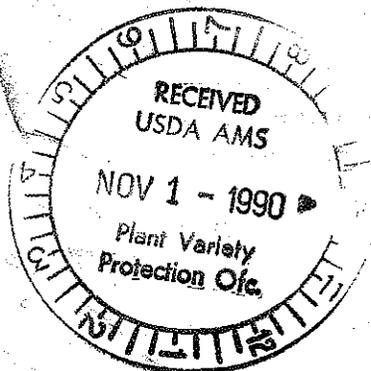
6

23. GIVE DATA FOR SUBMITTED AND SIMILAR STANDARD VARIETY: Paired Comparison Data

| VARIETY | NO. OF DAYS MATURITY | PLANT LODGING SCORE | CM PLANT HEIGHT | LEAFLET SIZE | | SEED CONTENT | | SEED SIZE G/100 SEEDS | NO. SEEDS/POD |
|-----------------------------------|----------------------|---------------------|-----------------|--------------|-----------|--------------|-------|-----------------------|---------------|
| | | | | CM Width | CM Length | % Protein | % Oil | | |
| Kasota Submitted | 122 | 1.3 | 81 | 9.9 | 11.7 | 41.1 | 21.3 | 15.5 | 2.6 |
| Sibley Name of Similar Variety | 121 | 2.0 | 86 | 8.8 | 11.8 | 39.4 | 21.6 | 17.1 | 2.4 |

PUBLICATIONS USEFUL AS REFERENCE AIDS FOR COMPLETING THIS FORM:

1. Caldwell, B.E., ed. 1973. Soybeans: Improvement, Production, and Uses. Amer. Soc. Agron. Monograph No. 16.
2. Buttery, B.R. and R.I. Buzzell. 1968. Peroxidase activity in seeds of soybean varieties. Crop Sci., 8: 722-725.
3. Hymowitz, T. 1973. Electrophoretic analysis of SBTI-A₂ in the USDA soybean germplasm collection. Crop Sci., 13: 420-421.
4. Payne, R.C. and L.F. Morris. 1976. Differentiation of soybean cultivars by seedling pigmentation patterns. J. Seed Technol. 1: 1-19.



9100025

Exhibit E

Statement of the Basis of Ownership

The Minnesota Agricultural Experiment Station is the owner of Kasota soybean. The Minnesota Agricultural Experiment Station is the employer of the breeders who developed Kasota.